

### **REMARKS**

Reconsideration and withdrawal of the rejections set forth in the Final Office Action dated December 16, 2008, is respectfully requested in view of this amendment and the following reasons. By this amendment, claims 1, 7, 9, 17, 18 and 20 have been amended. Accordingly, claims 1-10, 12-18, 20 and 21 are pending in this application.

Claims 1, 7, 9, 17 and 18 have been amended by describing the expression embedding section as defining a plurality of functions that input the watermark and output predetermined constants for each distribution destination. The functions and constants are set forth as being associated in a one to one correspondence and embedded in the program. Each of the functions is set forth as assigned variables with the functions and variables being associated in a one to one correspondence.

Support is found throughout the specification, in which the variables and their associations are described. It is respectfully submitted that the above amendments introduce no new matter within the meaning of 35 U.S.C. §132.

In the Office Action, claim 1 was objected to and claims 1-10, 12-18, 20 and 21 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claims 1-4, 6-10, 17 and 18 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,287,166 to Chang et al. (hereinafter *Chang*). Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Chang*, taken in view of U.S. Patent Application Publication No. 2006/0010430 to Cousot et al. (hereinafter *Cousot*); claims 12-16 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Chang*, taken in view of U.S. Patent Application Publication No. 2007/0234070 to Horning et al., (hereinafter *Horning*); and claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Chang* and *Horning*, taken further in view of U.S. Patent No. 5,559,884 to Davidson et al. (hereinafter *Davidson*).

### **Claim Objections**

In the Office Action, claim 1 was objected to as allegedly ambiguous as relating to the watermark generation program.

### **Response**

The revised claim has been amended to recite, "... a watermark generation section that generates in a program a watermark that differs ... ." It is submitted that claim 1 now presents the subject matter in clearer form.

The Examiner's help in this matter is appreciated.

### **Rejections Under 35 U.S.C. §112**

The Examiner rejected claims 1-10, 12-18, 20 and 21 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter. In particular, the Examiner pointed out that the use of "respectively" did not particularly define a particular order because the claims did not set forth a particular order.

### **Response**

The revised claim has been amended to recite the subject matter in terms of the relationships between the distribution destinations, the functions and the constants, and to describe the plurality of functions and the plurality of variables being associated in a one to one correspondence. It is submitted that this clarifies the associations in a one-to-one correspondence in these claims. Hence, Applicant submits that the rejections of Claims 1-10, 12-18, 20 and 21 under 35 U.S.C. §112 are overcome.

It is therefore respectfully submitted that the rejection under 35 U.S.C. 112 should be withdrawn.

### **Rejections under 35 USC §102**

Claims 1-4, 6-10, 17 and 18 were rejected under 35 U.S.C. §102(e) as being anticipated by *Chang*. In particular, *Chang* was cited as allegedly teaching a watermark insertion apparatus with a watermark generation section that differs for each of a plurality of distribution destinations, an embedding section that outputs a plurality of predetermined constants, a code insertion section, a second assignment expression embedding section and an addition section that generates and inserts a verification code.

### **Response**

This rejection is traversed as follows. For a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP §2131.

Applicants claims, as amended, set forth:

... a first assignment expression embedding section that defines a plurality of functions that input the watermark and output predetermined constants for each distribution destination ... [the] functions and ... constants being associated in a one to one correspondence, and embeds in said program the watermark and a plurality of expressions ... [the] functions and ... variables being associated in a one to one correspondence; a code insertion section that ... [halts] said program if each of said plurality of variables and each of said plurality of constants are not equal, and that inserts in said program said watermark verification code which, if said watermark or said watermark verification code is tampered ...; a second assignment expression embedding section that ... embeds in said program an expression that assigns said another function to another variable; and an addition section that generates and inserts as said verification code ... such that said decision statement of said program of a decision branch is not affected if said watermark and the watermark verification code are not tampered.

Consequently, Applicants' claims, as amended, set forth a plurality of functions that receive the watermark as input and output predetermined constants for each distribution destination, said plurality of functions and said predetermined constants being associated in a one to one correspondence, and embeds in said program a plurality of expressions that assign each of said plurality of functions to one of a plurality of variables, said plurality of functions and said plurality of variables being associated in a one to one correspondence. This clearly sets forth the use of the associations in a one-to-one correspondence.

In contrast, *Chang* describes an arrangement in which, if constant integer  $V$  is a randomly determined constant and adopts the same value between program copies  $S_y$  of different watermarks, by determining  $A_y$  such that  $A_y = V - W_y$ , then  $A_y$  also becomes different constant integers between program copies  $S_y$ . Guard  $G_0$  is inserted such that the client code block of guard  $G_0$  includes watermark  $W_y$ , and the client code block of checksum guard  $G_1$  includes  $G_0$ . Guard  $G_0$  is inserted in program copy  $S_y$  with watermark  $W_y$  and integers  $A_y$  and  $V$ . The process fails and Guard  $G_0$  will take a defensive action. See *Chang* at column 57, lines 26-56.

The above part of *Chang* discloses embedding watermark  $W_y$  and simple constants  $A_y$  and  $V$  in a program copy. This is interpreted by *Chang* as:

"... Accordingly, a collusion attack against two differently watermarked copies  $S_y$  of application software program  $S$  exposes only the different watermarks  $W_y$ , but does not expose any of the guards  $G_i$ . An attacker unaware of the network of guards may attempt to alter a watermark  $W_y$ , but in so doing will cause one or more of the guards  $G_i$  to take a defensive action." (*Chang* at column 58, lines 1-7.)

In contrast, Applicants' subject matter does not simply or only disclose embedding a watermark in a program. According to Applicants' claims, apart from a watermark, a plurality of functions and predetermined constants are associated in a one to one correspondence. These are used in the input of a watermark and used to output predetermined functions. The defined

functions are embedded in a program copy. It is respectfully submitted that this configuration is distinct over *Chang* and is neither shown nor suggested by *Chang*.

It is further noted that *Chang* fails to disclose the above-noted feature of the claims in which a plurality of functions are used to input a watermark, output predetermined constants, and embed the defined functions in a program copy.

Accordingly, *Chang* does not disclose the above-noted feature of the presently claimed subject matter of "generating another function that outputs another constant such that sum of said another constant and a sum of said plurality of constants is zero and embedding in said program an expression that assigns said another function to another variable."

The presently claimed subject matter is therefore distinct over the *Chang* disclosure and Applicants respectfully request withdrawal of this rejection.

### **Rejections Under 35 U.S.C. §103**

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Chang*, taken in view of *Cousot*. Claims 12–16 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Chang*, taken in view of *Horning*. Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Chang* and *Horning*, taken further in view of *Davidson*.

### **Response**

This rejection is traversed as follows. To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See *Dystar Textilfarben GMBH v. C. H. Patrick*, 464 F.3d 1356 (Fed. Cir. 2006). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366.

Regarding claim 5, *Cousot* is used to show watermarking an executable without altering the semantics of the executable. In contrast, *Cousot* fails to suggest the use of a verification code a code that adds a total value of the another variable. *Cousot* further fails to suggest using the sum of a plurality of variables to the decision statement of the conditional branching in the program in a manner that does not affect the program if the watermark and watermark verification code are not tampered. Instead, *Cousot* relies on showing an error in the case of a particular status of variables.

Regarding claims 12–16, 20 and 21, *Horning* allegedly show a watermark insertion section in which the watermark differs for each distribution destination. This fails to disclose or suggest a second assignment expression embedding section that generates another function, and fails to suggest inserting a verification code that adds a total value of another variable and the sum of a plurality of variables to the decision statement of the conditional branching. Instead, if the watermark itself is altered, the program stops operating. This does not reach to causing improper operation if a watermark verification code is tampered.

Regarding claim 21, *Davidson* is cited to show the use of execution flow as historical information. This does not suggest the use of the information for purposes of inserting a verification code that adds a total value of another variable and fails to suggest using the historical information for conditional branching. Significantly, *Davidson* fails to address the issue of causing improper operation if a watermark verification code is tampered. Therefore, there is no suggestion in the combination to render Applicants' features of an addition section that generates and inserts a verification code that adds a total value of another variable. The combination fails to suggest applying the sum of variables to effect conditional branching a

program, and there is no suggestion that the branching be done in such a way that the decision branch is not affected if said watermark and the watermark verification code are not tampered.

Accordingly, the cited prior art combination therefore fails to show or suggest the subject matter set forth in claims 5, 12-16, 20 and 21. It is therefore respectfully submitted that the rejection under 35 U.S.C. 103(a) should be withdrawn. Applicant respectfully request that the Examiner withdraw the rejections and the case be passed to issuance.

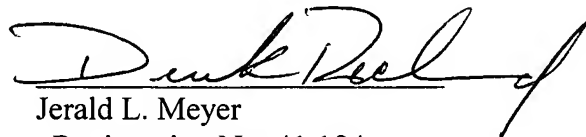
### CONCLUSION

In light of the foregoing, Applicants submit that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner call the undersigned.

Respectfully submitted,  
**THE NATH LAW GROUP**

March 16, 2009

THE NATH LAW GROUP  
112 South West Street  
Alexandria, VA 22314-2891  
Tel: 703-548-6284  
Fax: 703-683-8396



Jerald L. Meyer  
Registration No. 41,194  
Derek Richmond  
Registration No. 45,771  
Stanley N. Protigal  
Registration No. 28,657  
Customer No. 20529